TEXTILE TECHNOLOGY DIGEST

VOLUME 10 OCTOBER, 1953 NUMBER 10

Abstracts

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FIBERS A

Acetate blends of improved performance

F. Fortess, B. S. Sprague, R. G. Stoll (Celanese Corporation of America). *Am. Dyestuff Reptr. 42:* P851-P864 (December 7, 1953).

The problem of the balancing of physical characteristics in blends is discussed, and data are presented on acetate-viscose and acetate-viscose-nylon blends having optimum performance characteristics. Different finishing techniques used on acetate blends to enhance further the performance characteristics are described. Commercially feasible techniques for improved color fastness on acetate-viscose and acetate-viscose-nylon blends are also presented. The construction, dyeing procedures and performance characteristics of acetate-wool blends are described, and the effectiveness of acetate in producing fabrics having wool-like performance characteristics is pointed out.

END-USE REQUIREMENTS VS. MATERIAL PROPERTIES OF TEXTILES. R. G. Stoll. U. S. Office of the Quartermaster General. Research and Development Division. Textiles, Clothing and Footwear Branch. 1953. 33p diagrs., tables. Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $1.00 PB 111 224. Textile series report no. 83. Through *Bibliography Tech. Rpts. 20:* 217 (December 4, 1953).

This paper presents an analysis and classification of the varied and complex end-use requirements for all types of textile structures and a summarization of a large body of information on fiber properties and their propagation into yarns and fabrics which has come to light in many studies on this subject especially in recent years. The paper concludes with an analysis of the properties needed to meet the specific requirements

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of an important group of apparel fabrics.

Felting of textile fibers

A. I. Meos. *Tekstil. Prom. 12, No. 8:* 26-27 (1952); *in Russian.* Through *Chem. Abstracts 47:* 11741 (November 10, 1953).

Felting of fiber such as staple viscose, synthetic albumin, etc., is ascribed to the presence of active (polar and nonpolar) groups on their surface, which can react with each other at distances not greater than 2.5-3.0 Å., and results consequently from cross linkage between fiber surfaces.

MECHANICAL CONDITIONING OF TEXTILE FIBERS. George Susich. U. S. Office of the Quartermaster General. Research and Development Division. Textiles, Clothing and Footwear Branch. June 1953. 60p photos, diagrs; graphs, tables. Available from Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C. $1.50. PB 111 191. Textile series report no. 82. Through *Bibliography Tech. Rpts. 20:* 143 (October 2, 1953).

This report presents data on 16 fibers subjected to a rather severe stretching procedure. The samples, representing practically every type of textile fiber, were investigated in the form of single fibers, multifilaments and staple yarns. Their tensile properties, including their elastic recovery after deformation, are compared with their original properties. The structural changes which remain in fibers after the deforming force is removed are also discussed in the report.

Some moisture relations of wool and several synthetic fibers and blends

Myron J. Coplan (Fabric Research Laboratories, Inc., Boston, Mass.). *Textile Research J. 23:* 897-916 (December, 1953).

This work was undertaken to answer some practical "consumer-type" questions about fiber-

TEXTILE TECHNOLOGY DIGEST is published monthly by the Institute of Textile Technology, Charlottesville, Virginia. In preparing these abstracts, the editorial staff seeks to report correctly the contents of the original papers without reflecting the views of the staff or the members of the Institute. Printed in the U. S. A. Copyright 1953 by the Institute of Textile Technology. Annual subscription price: $25.00. Advertising rates available upon request.

fabric-water relationships. Especially of interest was the extent to which rate of fabric drying might depend upon (a) fiber moisture regain, and (b) speed of capillary migration. A variety of fibers in similar knit structures (men's socks) were studied to determine the effect of inherent fiber properties on speed of drying under ordinary household conditions. It was concluded that length of time to dry depends principally upon the amount of initial liquid water retained by a fabric per unit area for evaporation. The amount of water is related to the void volume of the fabric, a gross geometric factor, and capillarity, a fiber-related fabric characteristic. The fiber-sorbed water is relatively inconsequential to the practical problem of length of time to dry. 28 references.

Natural Fibers A 1

Cotton—an old fiber with a new future

Leonard Smith. *Am. Dyestuff Reptr. 42:* P789-P791 (November 23, 1953).

Improvements in physical properties through breeding research and new physical and chemical treatments are summarized and discussed in terms of their impact on cotton's utility to the textile industry.

Grading, baling and marketing of jute in Pakistan

Textile Quart. 3, No. 3: 181-182, 200 (1953).

Modernization of sisal drying in Tanganyika

Textile Quart. 3, No. 3: 179 (1953).

A new system which reduces labor and enhances fiber quality.

Polymerization of beta-propiolactone in wool

W. Gordon Rose and Harold P. Lundgren (Western Regional Research Laboratory, Albany, Calif.). *Textile Research J. 23:* 930-936 (December, 1953).

The reaction of propiolactone with wool has been studied with the purpose of increasing the rate of reaction within the fiber, while still retaining the enhanced felting qualities of the modified wool. It was found that the presence of water in low concentration, added either to the wool or to the propiolactone in carbon tetrachloride, greatly accelerated this reaction. The influence of water and the lower alcohols in promoting interaction of propiolactone within the fiber appears to be the result primarily of swelling of the fiber structure to permit penetration by the propiolactone. In the presence of water the higher alcohols, amyl and dodecyl, can penetrate to cause further swelling and increase in the rate

of modification within the fiber. 7 references.

Ramie. Part 1

Bruno Luniak. *Textile Quart. 3, No. 3:* 183-191 (1953).

History, nomenclature, botany, and geography of ramie. Translated from the Swiss edition of the book published by Verlag Leemann, Zurich, in 1949.

Some causes of damages to wool fibres. Part 2

Max Kehren. *Can. Textile J. 70:* 81-83 (October 9, 1953).

The causes, detection and avoidance of damage are discussed. Translated from German.

Textile fibre properties. Part 10. Chemical composition of cotton

A. J. Hall. *Textile Merc. 129:* 1094, 1096-1097 (November 27, 1953).

Wool research and the launderer

International Wool Secretariat. *Indian Textile J. 63:* 766-768 (September, 1953).

This article describes the behavior of the wool fiber in laundering and how it is being made unshrinkable.

Artificial fibers A 2

American Viscose develops improved carpet rayon yarn

Joseph W. Schappell. *Textile Age 17:* 18-19 (December, 1953).

Merits of American Viscose Corporation's Tufton viscose rayon carpet fiber are discussed with reference to soiling properties. Also reported in *Modern Textiles Mag. 34:* 31, 87-88 (December, 1953).

Development and end uses of Orlon

R. W. Trapnell (E. I. duPont de Nemours & Co.). *Can. Textile J. 70:* 59-62 (December 4, 1953).

Guide to producers of man-made fibers

Textile Age 17: 15-16 (December, 1953).

A listing of leading producers of synthetic yarns and fibers in the United States, including sales offices and products.

Improved Acrilan developed

Am. Dyestuff Reptr. 42: 798 (November 23, 1953).

Fabrics containing a new improved Acrilan (announced by Chemstrand in early November) have undergone satisfactory initial evaluation on full-scale mill equipment.

Introducing crimp into synthetic fibres

André Poirier. *Industrie Text. No. 799:* 439-441 (June, 1953); *in French.* Through *Brit. Cotton Ind. Research Assoc. 33:* 638 (October 30, 1953).

A method of obtaining a wool-like effect of waviness and crimp in synthetic fibers, based on heat treatment, is described.

Investigation of the structure of viscose rayon fibres for the determination of causes of streakiness on dyeing

J. Meybeck, N. Iwanow and R. Schneider. *Textil-Rundschau 8:* 485-487 (September, 1953); *in German.*

The information contained in this paper is summarized in *Brit. Rayon & Silk J. 30:* 78 (November, 1953).

Pan polyacrylonitrile fibre

Textile Wkly. 52: 1676 (November 27, 1953).

New German polyacrylonitrile fiber produced by Cassella Farbwerke Mainkur A. G. of Frankfurt, Germany is known as "Pan." Continuous filament and staple fiber properties are tabulated.

YARN PRODUCTION — B

Discussion on carding-spinning

Alabama Textile Operating Executives. *Textile Ind. 117:* 133-136 (December, 1953).

The spinneret

D. James. *Brit. Rayon & Silk J. 30:* 65 (November, 1953).

The role of precious metals in the manufacture of spinnerets for viscose rayon production is discussed.

Woolen and worsted yarn manufacture; compound yarns in fine counts

Wool Record 84: 1215-1216, 1218 (November 19, 1953).

Details are given for all-worsted gimp yarn, gimp and spot yarn, snarl-type yarn, and print effect yarn.

Fiber Preparation — B 1

Application of identification tints, with particular reference to acetate rayon staple

H. C. Olpin and A. J. Wesson. *J. Soc. Dyers Colourists 69:* 357-362 (October, 1953).

Fugitive tinting methods for acetate are reviewed. The excellent experimental results obtained by using Chlorazol Fast Pink BKS (ICI dye) or Solophenyl Blue Green BL (Pr 470) combined with polyvinylpyrrolidone (Albigen A) are described. Both are completely fugitive on viscose-acetate or wool-acetate blends, even after water swelling or steaming.

Method of raw wool scouring with composition containing suint, alcohols, ketones, and inorganic electrolytes

Harold P. Lundgren and Willie Fong (to United States of America). USP 2 655 428, October 13, 1953.

Some notes on oils and lubricants in relation to wool processing

Textile Mfr. 79: 590-593 (November, 1953).

Lubrication, adhesion, oxidation and saponification are the keynotes in wool oiling and lubrication. These processes depend upon the physical and chemical qualities of the oils or blends selected for particular purposes. This article deals with some aspects of wool processing as they are affected by the properties of lubricants.

Carding and Combing — B 2

Card-room changes were based on ends-down and yarn-strength tests

E. H. Helliwell. *Textile World 103:* 119, 192 (December, 1953).

A New England cotton mill in attempting to reduce ends down and increase yarn strength ran a series of tests varying rate of card production, roving frame roll-settings and amount of roving twist. It was shown that these variables have little effect on yarn strength but great effect on end breakage.

Problems of wool carding. Part 13. Neppy slivers

P. P. Townend (Leeds University). *Wool Rev. 27:* 37 (November, 1953).

The problem of producing nep-free slivers from blends containing noil is considered.

The scientist looks at the wool industry: Combing

Wool Sci. Rev. No. 11: 3-14 (October, 1953).

Research on wool combing is reviewed with particular reference to the work of P. P. Townend on the Noble comb. The experiments described are relatively simple studies and the need for more advanced work is pointed out.

Drafting and Roving — B 3

Control run-outs and piecings to improve spinning

N. H. Pomfret. *Textile World 103:* 132-133, 226-227 (December, 1953).

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In reference to spinning improvements the author discusses methods of piecing roving, organizing roving run-outs, breaking creels with different size bobbins, and using same-size bobbins after run-outs are organized.

Drawing of hard fibre tow; a study of sliver regularity and fibre distribution in slivers. Part 3. Added variation created by drafting

J. G. Thieme (Sisal Products (E.A.) Ltd.). *Textile Quart. 3, No. 3:* 173-178, 200 (1953).

13 references.

Effect of employing eight ends at the draw-frame instead of the usual six, on yarn quality of Indian cottons

V. V. Gupte (Technological Laboratory, Matunga). *Indian Cotton Growing Rev. 7:* 192-197 (July, 1953).

Fifty different Indian cottons were processed at the draw-frame with six ends up and eight ends up, all subsequent processing remaining the same. Analysis of variance applied to the skein strength test results showed that eight doublings are not advantageous compared to the usual six doublings.

New Platt drawing frame incorporating the Shirley drafting system

Textile Merc. 129: 1038-1039 (November 20, 1953).

Notes on drawing frame operation

William J. Langlois. *Whitin Rev. 20:* 12-17 (November-December, 1953).

Trouble shooting with the Uster tester

Elvin H. Bond (United States Rubber Co.). *Textile Ind. 117:* 115 (December, 1953).

Uniformity measurements in drawing make possible the location of mechanical faults in the drawing frame.

Spinning B 4

Alabama mill men answer on four spinning subjects

Alabama Textile Operating Executives. *Textile World 103:* 124, 189-190, 192 (December, 1953).

A discussion of antifriction and oilless top rolls, saddles, and nebs; vacuum waste removal and underframe cleaners; controlling yarn numbers; and high-draft spinning change-overs.

Coats and Clark Inc., Acworth, Georgia

Saco-Lowell Bull. 25: 32-34 (October, 1953).

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Spinning equipment for producing high quality thread yarns.

COTTON INDUSTRY. COTTON SPINNING REPORT OF THE FRENCH MISSION TO THE UNITED STATES IN MAY-JULY, 1950. Mission de la Filature de Coton, 1950. 245p photos, drawings, maps, graphs, tables (Text in French). Available from Mr. Georges Paques, Director of Public Relations, Association Francaise pour l'Accroissement de la Productivite, 11 rue Faubourg St. Honore, Paris, France. PB 112 106. Through *Bibliography Tech. Rpts. 20:* 218 (December 4, 1953).

Efficiency in ring spinning

S. Padmanabhan (Kaleeswarar Mills Ltd., Coimbatore). *Indian Textile J. 63:* 761-765 (September, 1953).

Practical hints for maintaining high production through good machinery maintenance and proper working conditions.

Method for improvement of fibre length distribution of direct spun yarn

Cotton Spinning and Weaving

A record of service as measured by

New plants	149
Major additions	387
Minor additions, reports, appraisals	1,921
Total engagements	2,457
Cost new plant and major additions	$210,000,000

Lockwood Greene Engineers, Inc.

Architects • Engineers

Boston 9, Mass. 40 Central Street
New York 20, N. Y. 10 Rockefeller Plaza
Spartanburg, S.C. Montgomery Bldg.

S. Ishikawa, M. Tabata and T. Okubo. *J. Soc. Text. Cellulose Industr. Japan 9, No. 1:* 17-22 (1953); *in Japanese with English summary.* Through *Brit. Cotton Ind. Research Assoc. 33:* 683 (November 14, 1953).

In the breaking zone of the direct spinning frame, the variations in tension of the stretched filaments cause variations in the distribution of the breaking point. The authors describe the use of the middle roller, set between the front and back breaking rollers, which produces a tension difference between those parts of the yarn entering and leaving it, and which can exercise some control over fiber length distribution.

Saco-Lowell worsted system heralds new spinning era

Am. Textile Reptr. 67: 10-15, 51-52 (December 3, 1953).

FS-4 roving and SS-4 spinning frames are claimed to halve required processes, to trim operating costs and to produce superior knitting and weaving yarn.

Some current notes on Gwaltney spinning

Saco-Lowell Bull. 25: 1-19 (October, 1953).

Mill experiences with the Gwaltney spinning frame. Also recent improvements on the frame.

Spinning Dacron polyester staple

Modern Textiles Mag. 34: 84 (December, 1953).

Hints from du Pont on spinning Dacron staple on the worsted system.

Theory and practice of flax spinning. Part 2. Machinery and equipment. Chapter 12. Gill spinning

A. V. Pringle. *Textile Quart. 3, No. 3:* 192-200 (1953).

Whitin spindles for every textile requirement. Part 4. The Whitin SKF roller bearing spindle (for twisters)

Whitin Rev. 20: 45-50 (November-December, 1953).

FABRIC PRODUCTION C

Cloth producer and user; textile problems of the clothing trade. Part 2

Textile Merc. 129: 1033-1035 (November 20, 1953).

Summaries of papers by clothing industry representatives at the Clothing Institute's Conference at Leeds, England, November, 1953.

Five ways cut meters help Swift Mfg. Co.

Richard B. Pressley. *Textile World 103:* 102-103 (December, 1953).

Swift Mfg. Co. has installed Veeder-Root cut meters to control the length of cloth cuts on various types of fabrics. Advantages of these meters and their application are discussed.

Here's a good way to use those damaged warps and dirty filling

Textile Ind. 117: 106-107 (December, 1953).

Cloth roll covering fabric is woven from soiled filling and damaged warps at Hartwell Mills, Ga.

Mark-Fix-3

Textile Wkly. 52: 1694 (November 27, 1953).

This fully automatic hand-operated cloth marker made in Switzerland is claimed to mark cloth from ten to twenty times more rapidly than is possible by other methods.

Yarn preparation C 1

Accurate yarn conditioning; scientific control means good yarns

H. Cheetham and Co. Ltd., Oldham, England. *Textile Wkly. 52:* 1590, 1593 (November 20, 1953).

Machines for yarn conditioning are described: Hygroscop for bobbins and hanks; Hygrocon for cones and cheeses; and Mac, a small utility machine for fine spraying. Conditrol is used as the wetting agent in each.

High-speed warping machine, type W. S. 51, by Fa. Jean Gusken Dulken

Johs. Gielessen and Jos. Cremer. *Textil-Praxis 8, No. 7:* 558-563 (1953); *in German.* Through *Brit. Cotton Ind. Research Assoc. 33:* 647 (October 30, 1953).

The features of a newly designed high-speed warper are described. The drive of the drum, by exchangeable cone wheels, can be adjusted to the length of the warp and the kind of yarn that is used. Automatic and manual switch controls are illustrated by diagrams and photographs.

Instrumentation boosts weave room efficiency

E. A. Murphy. *Modern Textiles Mag. 34:* 95-96 (December, 1953).

Slasher control at Canadian Celanese Ltd.

Introduction to a systematic study of sizing with amylaceous materials

S. Alayrangues, *et al.* (Centre recherches tex-

tiles, Mulhouse, France). *Bull. Inst. Textile France No. 37:* 21-46 (1953); *in French.* Through *Chem. Abstracts 47:* 11742 (November 10, 1953).

A systematic program for the study of sizing has been set up; an outline of the method of attack is given below. Control of experimental work is to proceed along several lines. In the characterization of the amylaceous products, the bursting temperature, morphology, viscosity, effect of iodine, moisture content, ash, pH of suspension, nitrogen content, reductive power, and alkali number are determined. In the characterization of raw yarn, the work is confined to American cotton. Yarns are spun under commercial conditions and at controlled tensions and turns. Characterization of the size-cooking is under controlled reproducible conditions, in a viscographic instrument. The size itself is measured for viscosity, film characteristics, web sizing properties, adhesive power, and pH. The size is applied under controlled conditions of temperature, viscosity, humidity, tension, and pickup. Efficiency of sizing is measured by degree of attachment to yarn, per cent of size deposited, and uniformity of application. Finally physical properties of sized yarns are measured, i.e. stress-strain properties, repeated loading characteristics, and resistance to abrasion. These are measured on sized and unsized yarns to obtain an index of percentile change with sizing.

Investigation of sizing of cotton yarns

D. De Meulemeester, M. Robinet, G. Raes, J. Roussel, E. Penders and G. De Backer. *Ann. Sci. Text. Belges. No. 1:* 7-96 (May, 1953); *in French.* Through *Brit. Cotton Ind. Research Assoc. 33:* 689 (November 14, 1953).

A comprehensive study is reported on (1) the composition and properties of commercial starches and laboratory degraded starches, (2) the slashing operation, and (3) the properties of sized yarns. A critical study of the methods used in determining the properties of the starches is included. Cotton yarns sized under different squeezing pressures and size temperatures were tested for breaking strength and elongation, friction resistance, and fatigue resistance. Conclusions are drawn in regard to the influence of such factors as (1) concentration and temperature of the size, (2) pressure and hardness of the squeezing rollers, (3) addition of wetting agents, and (4) blank passage through the slasher, on the stability of the size, on the percentage and distribution of the size uptake, and on the mechanical behavior of the yarn.

Modern methods for the preparation of the size in rayon warp sizing

G. Mirtschin. *Textil-Praxis 8:* 775-776 (September, 1953); *in German.*

The information contained in this paper is summarized in *Brit. Rayon & Silk J. 30:* 78,80 (November, 1953).

Nitrile rubber latices as permanent abrasion-resistant finishes for blue denim fabric

Edward Abrams and Neil Sherwood. *Am. Dyestuff Reptr. 42:* 777-782 (November 23, 1953).

Synthetic rubber latices, especially acrylonitrile-butadiene mixtures, have been applied to blue denim yarn as a warp size. Fabric woven from these yarns has an initial abrasion resistance equal to that for starch-sized fabric. However, after standard launderings the latex-sized fabric increases in abrasion resistance. After 5 launderings the abrasion resistance is approximately 100% greater than that of the original fabric. Similar tests on starch-sized fabric show a progressive decrease in abrasion resistance until the fifth laundering at which the abrasion resistance is equal to that of desized fabric. In addition to increased abrasion resistance, the latex finish prevents color bleaching during laundering and also prevents crocking and transfer of color to other fabrics during laundering and during ironing. White fabrics, in contact with latex-sized denim, remain white throughout laundering and even when ironed in contact with one another. Problems related to mill application are discussed. Also reported in *Textile Ind. 117:* 116-118 (December, 1953) and in *Textile World 103:* 94-95 (December, 1953).

Weaving C 2

Arrangement for the formation and beating up of the wefts in circular weaving looms

Jean Dunod (to Qualitex-Société Dunod & Cie, Paris, France). USP 2 659 393, November 17, 1953).

Automatically threading loom shuttle

William L. McHargue (to West Point Manufacturing Co.). USP 2 659 395, November 17, 1953.

Electrical warp stop motions

W. Middlebrook. *Textile Mfr. 79:* 585-586 (November, 1953).

Full-width fabrics from 6 pounds of yarn

Henry F. Tindel. *Modern Textiles Mag. 34:* 36, 93-94 (December, 1953).

Experimental weaving on commercial looms through the development of a special warping and sizing technique at the Celanese Corporation is described.

How to weave crepes with 1⅞ seconds

Richard B. Pressley. *Textile World 103:* 120-122 (December, 1953).

Optimum settings and maintenance for weaving crepes are discussed.

Jute and linen weaving. Part 2. Chapter 8. Supplementary shedding motions

Textile Quart. 3, No. 3: 168-172 (1953).

Keeping looms running and weaving first-quality cloth.

Textile Operating Executives of Georgia. *Textile World 103:* 130-132, 196, 198, 231-234 (December, 1953).

A discussion of loom supply costs; repaired loom parts handling; fiber shuttles vs. wood shuttles; loom and weave-room cleaning; setting looms for a sharp twill line; doffing cloth at the loom; eliminating slack and tight selvages; and inspecting cloth to reduce seconds.

On the practical effects of warp tension control. Part 1. T.I.T. type warp tension indicator

H. Uchida and E. Kuze. *J. Soc. Text. Cellulose Industr. Japan 9, No. 3:* 117-123 (1953); *in Japanese with English summary.* Through *Brit. Cotton Ind. Research Assoc. 33:* 690 (November 14, 1953).

Conditions of warp tension control were observed at several weaving plants. The construction and characteristics of a new apparatus, set up to record the total warp tension in weaving, are reported in the present article.

Primary motions of the loom

George Harris. *Textile Wkly. 52:* 1612-1616 (November 20, 1953).

Discussion of shedding, picking, and beating-up.

Set up loom assignments for maximum profit

T. F. O'Connor. *Textile World 103:* 135, 248, 250 (December, 1953).

Not only the direct-labor cost per unit of profit but also the indirect-labor cost and overhead have to be taken into consideration in setting job loads. An allowance for machine interference is made by using the Ashcroft numbers.

Setting theories for counts and sets for required weights

N. C. Gee. *Textile Mfr. 79:* 570-573 (November, 1953).

Part 6 of a series on textile calculations. Worked examples and exercises for calculating count, set, and loom, etc., particulars, also the variation of percentage amounts of fibers of yarns in greasy and finished cloths.

Suggestions for weaving Dacron yarns

Textile Ind. 117: 131, 209 (December, 1953).

Warner and Swasey Sulzer weaving machine

Wool Sci. Rev. No. 11: 28-39 (October, 1953).

Detailed description with photographs and diagrams.

Knitting C 3

Crimped continuous filament nylon yarn for half-hose

Brit. Rayon & Silk J. 30: 60-61 (November, 1953).

General notes on manufacture and finishing.

Developments in machine knitting. Part 2. On piece-goods machines

J. B. Lancashire. *Textile Recorder 71:* 138-140 (November, 1953).

An electro-magnetic drive for knitting machines

Roger H. Brown (Warner Electric Brake & Clutch Co.). *Textile Age 17:* 62-68 (December, 1953).

Discussion of the application of the electric clutch and brake to circular and flat type knitting machines.

How to prevent tricot pinholes and drop stitches

T. R. Tier. *Textile World 103:* 125, 198, 200 (December, 1953).

Correcting tricot fabric faults by making simple needle, guide and presser adjustments.

Knitting Dynel

James MacDonald, Jr. *Modern Textiles Mag. 34:* 32 (November, 1953).

Regular overhaul insures quality underwear

James H. Blore. *Textile World 103:* 96-98, 129 (December, 1953).

A step by step description of a complete overhaul for a circular-rib knitting machine.

Three basic methods for knitted gloves

Dan Singer. *Modern Textiles Mag. 34:* 54-56 (November, 1953).

Seamless, wrought, and fabric gloves.

Yarn can be handled too much

Don Numan. *Textile Ind. 117:* 108-109 (December, 1953).

Proper yarn handling in circular knitting mills.

Special fabrics C 4

Adhesion of rubber to fiber

Matthew W. Wilson (to B. F. Goodrich Company). USP 2 652 353, September 15, 1953.

This patent describes an adhesive coating material for fibers which are subsequently bound to conjugated diene rubbers. The adhesive is prepared by mixing an aqueous dispersion of the rubber with a solution of a phenol-aldehyde resin in water-miscible organic solvent.

Applications of bonded fiber fabric

G. H. Elliott. *"The Times" Rev. of Ind. 7, No. 80:* 13-14 (1953). Through *Chem. Abstracts 47:* 11741 (November 10, 1953).

A review of potentialities and present production of viscose non-woven fabrics in Great Britain.

Bird's-eye spot effects

Wool Record 84: 1210, 1212 (November 19, 1953).

Design suggestions are given for small spot effects for finer woolens and worsteds.

Cloth setting reconsidered. Part 2. Settings of square-built satin weaves

S. Brierley. *Textile Mfr. 79:* 578, 582 (November, 1953).

Design in woven fabrics. Part 13. Colour and weave effects

Wool Rev. 27: 33, 35 (November, 1953).

Easy way to center warp stripes

Osbert Hughes. *Textile Ind. 117:* 113-114 (December, 1953).

Imitation gauze effects

Wool Record 84: 1266, 1275 (November 26, 1953).

Designs for woolen and worsted fabrics.

Manufacture of resilient upholstery material

Brit. Pat. 688 315.

Process for manufacturing in a continuous manner long lengths of thick highly resilient upholstery material (for use as mattress, cushion padding, etc.) from highly crimped artificial fibers in the form of loose cable yarn. Long summary in *Fibres 14:* 388 (November, 1953).

Use of nylon yarns in fish netting

E. R. Needham (Drummondville Cotton Co. Ltd., Que.). *Can. Textile J. 70:* 74-76 (October 9, 1953).

Nylon has assumed an increasingly important role in the fish netting industry in past few years. The author enumerates its many advantages and few disadvantages.

STANDARD FINISHING D

Acid solutions of sodium chlorite for bleaching nylon textiles

Textile Mfr. 79: 563 (November, 1953).

Calender rolls

Farrel-Birmingham Co. Brit. Pat. 695 312. Through *J. Soc. Dyers Colourists 69:* 383 (October, 1953).

The rolls are shaped so that under actual working conditions of temperature and pressure the distance between a pair of co-operating rolls is constant throughout the width of the material being treated.

Chambers for the drying or gaseous treatment of textiles

Gebrüder Sucker. Brit. Pat. 695 582. Through *J. Soc. Dyers Colourists 69:* 382 (October, 1953).

The chamber channels contain rotary apparatus for directly sucking off the hot air or gas from outflow channels near the jets which supply the hot air or gas, and guiding it in closed circulation over heaters to the jets. With the same sized chamber and with use of less energy, higher efficiency and more uniform drying or other treatment is obtained.

Cloth raising machine

J. E. Kershaw and J. Prescott (to B. W. Wood, Ltd.). Brit. Pat. 696 437. Through *Dyer 110:* 652 (October 30, 1953).

For pile fabrics.

Decating of woolen fabrics

M. van Oberbeke, G. Mazingue, and P. Outreman. *Bull. Inst. Textile France No. 38:* 7-20 (1953); *in French.* Through *Chem. Abstracts 47:* 11741 (November 10, 1953).

It is judged that the critical index of efficiency of decating is the degree of relaxation upon subsequent wet treatment. Various test methods have

been examined, and a test was proposed based on prolonged wetting of the fabric, either in water or by condensation of steam thereon.

Facts about the finishing and uses of Perlon

W. Brennecke. *Textil-Praxis 8, No. 7:* 587-590 (1953); *in German.* Through *Brit. Cotton Ind. Research Assoc. 33:* 652 (October 30, 1953).

The setting of Perlon has been a problem; it has been solved in Western Germany by the use of saturated steam in specially designed vacuum steamers and other apparatus. Dyeing of yarns and fabrics may be done with Cibalane and Irgalene dyes. Methods for yarn dyeing have been worked out for vat, dispersion, acid, and Indanthrene dyes. The Acramin and Helizarin process can be successfully applied in the printing of Perlon fabrics, as well as the usual methods of pigment printing. Bleaching of Perlon is achieved by chlorinating, or with fluorescent brightening agents. Even unions with cotton, rayon, or rayon staple cause no difficulties. The same applies to water-proofing. As Perlon itself has little inherent swelling property, it has been found advisable, for high-quality water-proof materials, to use Perlon yarns as warp and cotton or other cellulose fibers for the weft yarn. A good silicone emulsion for this purpose has been produced by the firm Goldschmidt, Essen. Other treatments, such as rubberizing of Perlon fabrics, wash-proofing, embossing, and washproof-stiffening of Perlon tulles, and other materials of Perlon for apparel and decorative fabrics, are described.

Feeding of the mercerization bath

V. E. Rostovtsev. *Tekstil. Prom. 12, No. 7:* 33-36 (1952); *in Russian.* Through *Chem. Abstracts 47:* 11741 (November 10, 1953).

The concentration of the mercerization bath in a continuous process is kept contant by feeding an alkaline solution of higher than the bath concentration.

How to trap lost profits in tentering

D. V. Guillemette (Mount Hope Machinery Co.). *Textile Age 17:* 38-46 (December, 1953).

Several cost saving refinements and applications in tentering are presented.

Improved operation of cylinder dryers

Leo Walter. *Indian Textile J. 63:* 772-775 (September, 1953).

Practical suggestions for proper operation are given. 4 references.

Investigations on the dependence of the scouring action on the pH value of the scouring liquor

Rudolf Monch and Werner Graupner. *Textil- u. Faserstofftech. 3, No. 6:* 269-273 (1953); *in German.* Through Brit. Cotton *Ind. Research Assoc. 33:* 697 (November 14, 1953).

Three scouring agents were examined. One was a soap with 27.9 per cent fat content. The second was a compound containing a fatty alcohol sulfonate. The third was a polyethylene oxide condensation product. The dependence of their scouring action on the pH value was investigated to demonstrate the formation of the electrokinetic potential in the washing process. Values were found that conformed well with conditions experienced on a practical commercial scale. The results from the three tests were similar, showing that the amount of the electrical charge has a decisive bearing on the scouring process.

McKiernan-Terry multipurpose calender

Am. Dyestuff Reptr. 42: 798 (November 23, 1953).

This new McKiernan-Terry calender can be used for friction, Schreiner, or embossing work and is especially adapted for use with resin finishes. Pressures up to 75 tons can be used.

Nylon heat setting machine using infra-red radiation

Fibres 14: 395 (November, 1953).

French heat setting machine, Rame France IR2, developed by Establissements Saint-Genis, as described in the March 15, 1953, issue of *Teintex* (in French).

Piece scouring

F. Köstring. Brit. Pat. 693 207. Through *J. Soc. Dyers Colourists 69:* 382 (October, 1953).

Fabric enters scouring and cleaning vats faster than it leaves so that it passes through without tension. Vertically-moving plungers provide agitation.

Sodium chlorite bleach

M. Erlenbach and A. Sieglitz. Brit. Pat. 696 967. Through *Dyer 110:* 651 (October 30, 1953).

A method to prevent the corrosion of stainless steel equipment by sodium chlorite by the addition of nitrates.

Sodium hydrosulfite

Yorkshire Dyeware and Chemical Co. Brit. Pat. 695 375. Through *Dyer 110:* 652 (October 30, 1953).

A method for reducing sodium hydrosulfite's tendency to deteriorate.

Some notes on wool bleaching

Textile Recorder 71: 159-160 (November, 1953).

The practical aspects of peroxide bleaching are discussed and the importance of the pH value is stressed.

Stains in finishing. Part 1. Oil, tar and paint stains

Wool Sci. Rev. No. 11: 15-27 (October, 1953).

Stains on wool fabrics may cause considerable difficulty in dyeing and finishing. This article shows how oil, tar, and paint stains occur, how they may be avoided, and methods for dealing with them.

Thread singeing

J. V. Reyes, Brit. Pat. 696 395. Through *J. Soc. Dyers Colourists 69:* 382 (October, 1953).

The thread passes through an open groove lined at its bottom and sides with an electrical heating resistance. This results in uniform application of the heat around the thread.

Washing sheet material

N. V. Philips' Gloeilampen Fabrieken. Brit. Pat. 694 532. Through *J. Soc. Dyers Colourists 69:* 388 (October, 1953).

Speedy cleansing of cloth, paper, etc. is achieved by wetting the material with a dilute solution of a non-ionic wetting agent and then causing the washing liquor to flow through the material at right angles to the surface of the sheet.

Wool-finishing practice

T. H. Sedgwick (Halifax Tech. Coll., England.) *Dyer 106:* 297-300, 371-4, 515-18, 591-4, 731-7 (1951); *107:* 105-10, 251-3, 407-10, 414; *108:* 99-102, 683-4, 905-8 (1952). Through *Chem. Abstracts 47:* 11741 (November 10, 1953).

The theoretical interpretation of wool structure is reviewed and applied to the structural changes occurring during the setting and carbonizing of wool. The mechanism of wool scouring is also reviewed.

DYEING AND PRINTING E

Brightening textiles with fluorescent substances

A. Landolt (Ciba A.-G., Basel, Switzerland). *Textil-Rundschau 8:* 337-45 (1953); *in German.* Through *Chem. Abstracts 47:* 11741 (November 10, 1953).

A review of fluorescent whitening agents for cellulosic or animal fibers, acetate, nylon or soap, with data relating to the properties and performance of commercial agents. 34 references.

Cellulose acetate printing

H. C. Olpin and T. Jackson (to British Celanese). Brit. Pat. 696 135. Through *Dyer 110:* 651-652 (October 30, 1953).

A steam-volatile organic base (such as triethanolamine) and a liquid medium (such as water-ethanol) are incorporated with azo dye printing pastes. When the impregnated acetate material is steamed, the above components act together to swell the acetate fibers.

Colouring cellulose esters or ethers

Brit. Pat. 695 719. Through *J. Soc. Dyers Colourists 69:* 389 (October, 1953).

A wide range of dyes containing acid groups can be fixed on cellulose acetate or the like if there is simultaneously present on the cellulose acetate both urea and a thiocyanate.

Continuous dyeing with sulfur dyes by steaming

S. A. Plaksin and P. u. a. Wichjanzov. *Ceskoslovensky Textil, Prag. No. 3:* 64-68 (1952); *in Czech.* Through *Brit. Cotton Ind. Research Assoc. 33:* 697 (November 14, 1953).

The dyeing of cotton fabrics in a continuously working dyeing range is considered to have several disadvantages; for example, unsatisfactory properties in the dyed materials and a considerable loss of dyes. The short dyebath treatment is preferred. Better results are obtained by diffusing the dye liquor into the fabric under pressure. Another method is fixation of the dyes in a kier as part of the dyeing range. This process is carried out at a sufficiently high temperature with a decreasing concentration of the dye liquor. A dyeing range is described, consisting of a dye-bath (enclosed type with an outlet valve), a steam kier, and a washing apparatus in six parts. Dye recipes and test data are given.

Control of azoic dyeing processes

E. R. Wiltshire. *Dyer 110:* 181 (August 7, 1953).

The depth of shade is determined by the amount of Brenthol (Naphthol) absorbed on the fiber. While the Brenthol sodium salt is stable in alkaline solution, the diazo compound is stable only in acid solution. Hence, in order to prevent decomposition of one or the other, coupling should occur very rapidly and near a pH of 7. This cannot be achieved, during a run, by keeping the de-

veloping solution neutral. The developing solution must be kept slightly acid with an "alkali binding agent."

Dye winch

Mellor Bromley & Co. Brit. Pat. 693 106. Through *J. Soc. Dyers Colourists 69:* 382 (October, 1953).

Liquor is withdrawn from the dyebeck, passed through a chamber housing a propeller, and delivered to the opposite side of the beck at a higher level than that at which it is withdrawn. Higher dyeing uniformity with shorter liquor ratios is claimed.

Dyeing and processing of synthetic fibers

Ralph A. Travis (Pepperell Manufacturing Co., Biddeford, Maine). *Am. Dyestuff Reptr. 42:* 845-847 (December 7, 1953).

A general survey.

Dyeing of viscose rayon at high temperatures

K. Butterworth. *J. Soc. Dyers Colourists 69:* 362-370 (October, 1953).

Previous work is reviewed and a number of high-temperature dye stability tests described. Test results for a large group of direct and vat dyes are given. 20 references.

Highlights of the past year

P. J. Wood (Royce Chemical Company). *Am. Dyestuff Reptr. 42:* 843-844 (December 7, 1953).

Significant patents in equipment for dyeing and wet processing.

An improved automatic jigger for piece dyeing

Erich Krause. *Textil- u. Faserstofftech. 3, No. 6:* 275-276 (1953); *in German.* Through Brit. *Cotton Ind. Research Assoc. 33:* 697 (November 14, 1953).

A new tensionless, three-speed automatic jigger has been designed by Erste Chemitzer Maschinenfabrik. A diagram and photographs, showing its special features, are included in this article.

Manchester textile machinery display; a survey of the dyeing and finishing sections

Dyer 110: 492-517 (October 2, 1953); 571-572, 576 (October 16, 1953); 653-654 (October 30, 1953).

The exhibits of dyeing and finishing machinery manufacturers are described.

Modern printing techniques

Society of Dyers and Colourists. *Textile Merc.*

129: 1087-1088 (November 27, 1953).

Summaries of papers presented at the Symposium on Textile Printing.

New dyeing processes. Part 2. Continuous processes

R. W. Moncrieff. *Fibres 14:* 389-392 (November, 1953).

(1) Pad steam continuous process for vat dyes, (2) Standfast Molten Metal process for vat dyes, (3) Thermosol continuous process for acetate dyes on new fibers, (4) Coronising process for the coloration of glass, and (5) Aridye pigment padding by simultaneous application of a resin and a pigment. 8 references.

New products developed since November, 1952

Am. Dyestuff Reptr. 42: 809-842 (December 7, 1953).

Alphabetical list of new products in dyeing and wet processing which have been placed on the market or further developed since November, 1952. Trade name, name of manufacturer, and properties and intended uses are included. The list is divided into three sections: (1) dyestuffs and pigments, (2) textile chemicals, and (3) equipment.

O-twist Dacron dyed by CY & D

Am. Dyestuff Reptr. 42: 797 (November 23, 1953).

Central Yarn and Dyeing Company of Gastonia, N. C. is prepared to package-dye production quantities of zero twist Dacron yarn in a full range of colors. A special combination of high pressure and high temperature is used.

Pigmented prints and dyeings

Brit. Pat. 694 076. Through *J. Soc. Dyers Colourists 69:* 389 (October, 1953).

Dyeings or prints which are very fast to washing and rubbing are produced by treating the material, before, during, or after application of a pigmented dispersion or solution of a high molecular weight substance containing hydroxyl, carboxyl, or carbamoyl groups, with a polyisocyanate, and then baking the dried material above 100° C.

Printing, coating, lacquering, or colouring sheet materials

Beasley, French & Co. Brit. Pat. 693 281. Through *J. Soc. Dyers Colourists 69:* 389 (October, 1953).

Closer spacing of printing units can be achieved without smearing if each coloring com-

position is dried by a gas supplied to and withdrawn from an element having a working face which is close to and conforms to the shape of the surface to be dried.

Printing on cellulose ester or ether textiles

Brit. Pat. 696 134. Through *J. Soc. Dyers Colourists 69:* 389 (October, 1953).

When thiocyanate is used to assist fixation during printing with acid or other dyes or dye intermediates, better results are obtained if the textile is first impregnated with the thiocyanate and then printed with a paste containing no thiocyanate. This avoids the weakening of the material caused when high concentrations of thiocyanate are present in the printing paste.

Progress in dyeing the newer synthetic fibers

Paul Choquette (General Dyestuff Corporation). *Textile Age 17:* 24-33 (December, 1953).

Modern methods of dyeing synthetic fibers and fiber blends with wool and cotton are discussed. 14 references.

Progress with indanthrenes

Stanley H. Brown. *Modern Textiles Mag. 34:* 59, 62 (December, 1953).

General discussion of indanthrene vat dyeing of cottons, rayons and synthetics. The flash printing method is also described.

Recent advances in dyeing Orlon acrylic fiber and Dacron polyester fiber and blends of these with other fibers

J. F. Laucius (E. I. du Pont de Nemours and Co.). *Am. Dyestuff Reptr. 42:* P792-P796 (November 23, 1953).

An up-to-date summary is presented with special emphasis on the dyeing of blends of the two new fibers with presently available fibers. Recent developments in dyeing Orlon with dispersed, vat, and basic dyes are covered and, in addition, the cuprous-ion method of dyeing Orlon is reviewed in detail. Carriers and pressure dyeing are emphasized for disperse colors on Dacron. 13 references.

Roller printing machines

Schlieper & Baum. Brit. Pat. 695 041. Through *J. Soc. Dyers Colourists 69:* 383 (October, 1953).

A machine in which the effective width of the transfer rollers can be increased continuously to conform with the width of the material being treated without rendering necessary either ex-

change of the printing rollers or change in width of the pressure cylinder surface.

Single-stage multicolour printing

Brit. Pat. 695 712. Through *J. Soc. Dyers Colourists 69:* 389 (October, 1953).

A roller or block is used which has several colored elements made of a thermoplastic composition, printing being effected in presence of a solvent for the thermoplastic composition, which solvent, where the surface to be printed is also a thermoplastic, is also a solvent for the surface.

Some chemical problems arising in the study of anthraquinone dyes

S. Coffey. *Chemistry and Industry No. 41:* 1068-1074 (October 10, 1953).

Though primarily of interest to the dyestuff chemist, this article touches on some of the dye-instability problems important to the textile man.

Studies on the dyeing of cellulose acetate fibre. Part 8. On the partial saponification of cellulose acetate fibre. Part 1

R. Tanaka and K. Seko. *J. Soc. Text. Cellulose Industr. Japan 9, No. 3:* 127-129 (1953); *in Japanese with English summary.* Through *Brit. Cotton Ind. Research Assoc. 33:* 698 (November 14, 1953).

Cellulose acetate fibers were saponified with sodium hydroxide (concentration 1 N, ½N) at various temperatures (20-50° C) and for various periods (1-30 min). In observing the dyeing qualities of the fiber, it was found that the affinity of the fiber for dyes increases inversely as the acetyl value of the fiber, until the latter value is 47-48 per cent. Beyond this point, there is no significant increase in the dye affinity of the fiber. The neutral salt (e.g. sodium tartrate), added to the saponification bath, not only checks saponification, but prevents fiber damage.

Studies on the dyeing of the cellulose acetate fibre. Part 8. On the partial saponification of the cellulose acetate fibre. Part 2

R. Tanaka and K. Seko. *J. Soc. Text. Cellulose Industr. Japan, 9, No. 3:* 129-132 (1953); *in Japanese with English summary.* Through *Brit. Cotton Ind. Res. Assoc. 33:* 698 (November 14, 1953).

Assuming that the acetate fiber has a perfectly circular cross-section and that the saponified layer is composed of perfectly regenerated cellulose, the fiber with an acetyl value of 47-48 per cent as a whole, has an outer layer of regenerated

cellulose of a thickness corresponding to 5 per cent of the original fiber radius; the thickness of the outer layer is calculated to be about 7,000Å. In the tests described, cross-sections of partly saponified cellulose acetate were dyed with a mixture of Nippon Sky Blue, 390 per cent, and Celliton Red R, and examined under the microscope. The saponified outer layer dyed deep blue and the inner layer of cellulose acetate dyed red: the thickness of the blue layer varied between the fibers according to the mechanical treatment they had had in the test. Although the cross-sections showed that the saponified layer was not completely uniform, the dyeing was level, because more than 5 per cent of the original radius had become saponified. It is evident that the saponified layer is not always composed of perfectly regenerated cellulose; but it is important to obtain a uniform saponification, so as to calculate accurately the acetyl value.

Study of the afterchrome process

J. F. Gaunt. *Textile Mfr. 79:* 436-437 (August, 1953).

The author emphasizes the advantages of the afterchrome process and points out that it is the

only method which will produce level shades with certain chrome colors. The nature of the afterchroming operation and certain necessary precautions are discussed.

Symposium on textile printing

Society of Dyers and Colourists. *Dyer 110:* 473-474 (October 2, 1953); 563-567 (October 16, 1953); 639-642 (October 30, 1953).

Abstracts from papers delivered at the symposium are presented.

Theoretical aspects of certain dyeing phenomena

Henri Wahl. *Bull. Inst. Textile France No. 38:* 39-61 (1953); *in French.* Through *Chem. Abstracts 47:* 11737 (November 10, 1953).

A review is given of theories of dyeing of cellulose with direct dyes. As is known, the reversible equilibrium between cellulose and an aqueous solution of a direct dye is affected by temperature, concentration of dye, and concentration of mineral salts. Affinity of a dye for cellulose and heat of dyeing can be calculated from experimental data. However these properties are variable with the geometrical structure of the dye and the accessibility of the cellulose, and are

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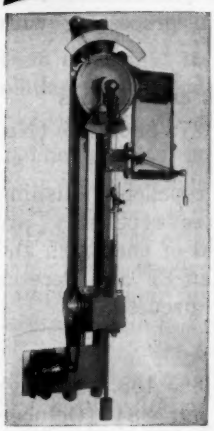

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intimately tied up with the tendency to form H bonds between the dye and the cellulosic OH groups.

3-D printing-embossing gives unusual effects

George M. Moisson. *Textile World 103:* 99, 224, 226 (December, 1953).

A new process using Emboprint inks, made by Metro Dyestuff Corp., West Warwick, R. I., for simultaneous embossing and printing of cellulosic fabrics. A procedure for this process is given along with some advantages of the new method.

Time-temperature regulation in dyeing

Leo Walter. *Modern Textiles Mag. 34:* 84, 86-88 (November, 1953).

Practical problems in dyehouse control instrumentation are discussed.

A tool that makes dyeing easier

R. H. Souther (Cone Mills Corp.) *Textile Ind. 117:* 124-126 (December, 1953).

The Con-Mil Method, using an electronic instrument to measure the condition of the dyebath, produces even shades.

SPECIAL FINISHING F

Crease-resisting cellulosic textiles

Tootal Broadhurst Lee Co. Brit. Pat. 695 703. Through *J. Soc. Dyers Colourists 69:* 390 (October, 1953).

The textile is impregnated with an aqueous solution of a crystalloidal synthetic resin precondensate and with an aqueous dispersion of a polysiloxane. The polysiloxane must be an oily liquid, and on being heated in thin layers must yield an infusible non-tacky flexible film. The impregnated textile is then baked. Impregnation may be carried out either in two steps or in one operation.

Effect of surface-active compounds in the finishing processes

Z. ges. Textil-Industrie 55, No. 16: 982-983 (1953); *in German.* Through *Brit. Cotton Ind. Research Assoc. 33:* 653 (October 30, 1953).

Several after-treatments for yarns of man-made fibers are discussed. Agents are listed which improve the handle, luster, brightening or dulling effects, and the elasticity and hygroscopicity of yarns made from filament or staple fibers. These agents act as substitutes for the fats that are inherent in natural fibers.

Hydrophobic textiles

Dynamit A. G., Germany. Brit. Pat. 697 252 Through *Dyer 110:* 652 (October 30, 1953).

Textile materials are rendered hydrophobic and given a silk-like handle by impregnation with an aqueous solution of an aliphatic amine N-glycoside followed by heating and washing.

Making mechanical finishes on cellulose or silk resistant to washing

Bradford Dyers' Assoc. Brit. Pat. 696 029-30. Through *J. Soc. Dyers Colourists 69:* 390 (October, 1953).

Mechanical finishes on natural or regenerated cellulose or silk, e.g. glazing, moire, embossing, or compressive shrinking, are rendered resistant to washing by treating the material before, during, or after application of the mechanical finish with an organic isocyanate or isothiocyanate in the form of either vapor, aqueous dispersion, or organic-solvent solution, and then heating to cause the isocyanate or isothiocyanate to react with the fiber. If the reaction is carried out in the presence of an amine, amidine, or aminotriazine, firmer handle and even better resistance to washing are obtained.

Mechanical finishing of cotton and rayon fabrics

Textile Recorder 71: 135-137 (November, 1953).

Fabric impregnation with organic isocyanates for permanent glazed, lustrous and embossed effects by combining mechanical processing with a chemical treatment.

Modern water repellent fabrics and finishes

R. H. Roberts. *Fibres 14:* 378-380, 385 (November, 1953).

The principles of water repellent finishing and the mechanism of water repellency are analyzed in relation to the roles of the finish and the design of the fabric. Velan PF and Decetex 104 and their application are discussed.

Mothproofing

E. B. Eriksson. Brit. Pat. 695 168. Through *J. Soc. Dyers Colourists 69:* 384 (October, 1953).

Better fixation of silicofluorides to wool is obtained if the wool is treated with alkali to neutralize any acid present and then well rinsed in water before application of the silicofluoride. The silicofluoride is so firmly bound to the wool that after the first wash the fluorine content does not diminish on subsequent washings.

Permanent finish on cellulosic textiles

Cluett, Peabody & Co. Brit. Pat. 693 111. Through *J. Soc. Dyers Colourists 69:* 390 (October, 1953).

A wide variety of permanent finishes are produced on cellulosic textiles without much alteration in handle or porosity by first modifying the cellulose topochemically to an unsaturated ester or ether without altering its physical form, and then copolymerizing it with an olefinic monomer. The topochemical treatment should be such that the product contains one unsaturated substituent per 1-10 anhydroglucose rings.

PRESERVATION OF ROPES AGAINST DETERIORATION IN SEA-WATER. W. R. Hinson. Australia. Dept. of Supply. Defence Research Laboratories, Maribyrnong, Victoria. May, 1953. 9p tables. Report no. 192. Available from Library of Congress, Publication Board Project, Washington 25, D. C. Micro-film $1.25, Photostat $1.25. PB 110 901. Through *Bibliography Tech. Repts. 20:* 186 (November 6, 1953).

The use of copper soap, copper naphthenate, creosote, and tars, alone or in combination, in protecting sisal and manila ropes against fouling and loss of tensile strength resulting from immersion in sea-water has been studied. Copper compounds are most effective in reducing fouling, and coal tars in preventing loss of strength; the presence of creosote retards the leaching of the copper compounds.

Resin treatment to improve the fastness of dyed cellulose fibre goods

Brit. Pat. 691 686.

The process is based on the simultaneous or successive application of a resin and a copper salt to specified types of direct dyes (these either contain copper or are capable of combining with copper when treated with a copper salt) in order to improve their fastness to washing and at least maintain their fastness to light. Long summary in *Fibres 14:* 386-387 (November, 1953).

Setting the twist or crimp of carpet yarns

Brit. Pat. 685 201.

Fiber stabilization for carpet yarns by treatment with synthetic resins followed by drying and curing at about 300° F. for about 15 minutes. Long summary in *Fibres 14:* 386 (November, 1953).

Silicone finishes in the textile industry

Midland Silicones Ltd. *Fibres 14:* 375-377

(November, 1953).

Silicones have properties of water-repellency, inertness and resistance to heat and oxidation. Uses of the "Drisils" in shower and water-proofing, in improving fabric hand and drape, and in other textile finishing operations are described.

Stabilizing viscose rayon

Fibres 14: 383-384 (November, 1953).

Summary of work at the American Viscose Corporation on the stabilization of viscose rayon fabrics with the Avcoset process.

Studies on the crease resistant finish using urea formaldehyde resin. Parts 3 and 4. The catalysts employed in the treatment of the fabric with urea formaldehyde solution

M. Hida. *J. Soc. Textile Cellulose Industr. Japan 9, No. 1:* 28-36 (1953); *in Japanese with English summaries.* Through *Brit. Cotton Ind. Research Assoc. 33:* 699 (November 14, 1953).

Buffering agents and certain catalysts (e.g. hydrochloric acid; ammonium, aluminum, calcium, zinc, and magnesium chlorides; and trimethyl amine, dimethyl aniline and pyridine hydrochlorides) are reviewed. The relation between the drop in the pH value of the aqueous solution of the catalysts caused by heating, and the similar change in the uncondensed urea-formaldehyde solution into which the catalysts are mixed, is examined. The fastness to washing of the resins on the fabrics and the imbibition value of the fabrics are studied. From the results, the properties of these compounds as catalysts employed in the crease-resist treatment are discussed.

Water-repellent finishing of Perlon

R. Kepler. *Textil-Praxis 8, No. 7:* 573-575 (1953); *in German.* Through *Brit. Cotton Ind. Research Assoc. 33:* 655 (October 30, 1953).

The degree of water absorption of the synthetic fibers generally is investigated in connection with their use for underwear, bathing suits, and water-proof gabardine and other suitings. Various methods for producing water-repellency, and the degrees of laundering resistance of garments or fabrics with water-repellent finishes, are described. By immersion- and shower-tests of materials, especially those made from Perlon, it is shown that there is only one safe system; this is the impregnation of fabrics with a silicone emulsion; recipes are given.

TESTING AND MEASUREMENT G

Detection and measure of degradation in wools

M. Robinet. *Bull. Inst. Textile France No. 39:* 49-62 (1953); *in French.* Through *Chem. Abstracts 47:* 11741 (November 10, 1953).

A number of tests for alkaline wool degradation have been compared for reproducibility on an interlaboratory basis. Best agreement was obtained with the Pauly reagent and with the lactophenol blue staining test. The author cautions on acceptance of such results without keeping in mind that affinity for a given stain may not necessarily correspond to a real difference in physical properties.

Development of the geometric staining scale

K. McLaren. *J. Soc. Dyers Colourists 69:* 285-287 (August, 1953).

The various methods which have been proposed in different countries for evaluating the degree of staining of adjacent undyed material in fastness tests are reviewed. The most recent proposal, the geometric staining scale, is now being studied in several different countries and may become internationally accepted. 14 references.

German standards for textile testing; evaluation of test results

Melliand Textilber. 34: 470-472 (May, 1953); 573-575 (June, 1953); *in German.*

This development gives standards and procedures, supported by practical examples, of the following: (1) computation of averages, standard deviations, and coefficients of variation; (2) confidence limits for averages and standard deviations; and (3) comparison of test results for averages and standard deviations. The development is similar to that found in the American Society for Testing Materials *Manual on Quality Control of Materials* and British Standards 600 and 600:R, but presents a more condensed and, in some ways, more easy to follow sequence. Limitations of the various techniques are indicated.

Measurement of crimp in wool

Wool Sci. Rev. No. 11: 40-50 (October, 1953).

Detailed discussion of wool crimp and the problems involved in its measurement. 6 references.

Measurement of the twisting moment of fibre and yarn. Part 1. The gravity method

G. Oswa. *J. Soc. Text. Cellulose Industr. Japan, 9, No. 1:* 36-41 (1953); *in Japanese with English summary.* Through *Brit. Cotton Ind. Research Assoc. 33:* 711 (November 14, 1953).

An ordinary twist counter is employed and the twisting moment is measured by the gravity that acts on the needle attached to the test piece, set horizontally on the counter. The needle is inclined by an angle to the vertical when the test piece is twisted. Given the length and the weight of the needle, the twisting moment can be calculated. The influence on the twisting moment, of the converse twist of the supporting part, is examined and concluded to be negligible in most cases. By means of this method, the relation between the moment and twist, especially the plastic hysteresis-cycle of this relation, can be obtained. The torsional resistance of any length of fiber and yarn, including spun yarn, can be tested easily.

A nomograph for evaluating the significance of some test results

Chou Hsiung Li. *ASTM Bull. No. 194:* 74-76 (December, 1953).

A nomograph is given for determining whether or not an observed difference is significant, using examples from purchasing, production, management, research, and quality control. Only the problem of attributes or percentages is solved by the nomographs (omitting variables and similar measurements). N.L.E.

Planning an experiment in a cotton spinning mill

Robert E. Peake. *Appl. Statistics 2:* 184-192 (November, 1953).

There are few published examples of planned experiments conducted in a factory, and even fewer on textile mill uses. In this article, Mr. Peake shows a typical textile example of an application and the method of solving the technical, statistical and practical problems that arise in determining suitable sample sizes and evaluating the various types of variation encountered in the test results. The particular illustration deals with the evaluation of end breakage obtained with a modified flyer on a roving frame, but the principles are widely applicable in most types of textile mill experimentation. N.L.E.

Quality control in the U. S. A.

Edward D. Van Rest. *Appl. Statistics 2:* 141-151 (November, 1953).

A survey of quality control practice in the U. S. It is noted particularly that "quality control is usually regarded in Great Britain as a

statistical subject, but. . . in the U. S. as a branch of management concerned with the control of quality, control involving not only manufacture to a specification but also a satisfaction of the consumer's needs." The following aspects are considered: scope, organization, administration of quality control department, statistical techniques, inspection specifications, and teaching. N. L. E.

Quality control through statistical methods. Part 2. Measurement of variability and its uses

N. L. Enrick *Modern Textiles Mag. 34:* 43-46 (November, 1953).

The author presents several different methods of measuring variations such as in terms of standard deviation, coefficient of variation and range. Examples are given from various carding and and spinning applications. Of special interest to cotton carders should be the conversion curves showing the relation of "percent of yards outside limits" on a picker with the "coefficient of variation." The physical meaning of variation coefficients is discussed, together with convenient tabulated data for practical mill use.

Quality control through statistical methods. Part 3

N. L. Enrick. *Modern Textiles Mag. 34:* 79-82 (December, 1953).

This article is presented in two parts, Part 1: *What is Wrong with "Maximum Variation"?* and Part 2: *Analysis of Variations.* Why the statistical measure of coefficient of variation is a more reliable value than "maximum range," is demonstrated and then the author shows how the variation coefficient may be used in a spinning mill in analyzing and reducing sources of the three major types of variation: within-delivery variation, within-machine (but between-delivery) variation, and between-machine variation. As in the preceding articles, illustrations from actual mill use are furnished, with several supporting diagrams and charts. Typical values for variations are quoted.

Rapid test for honeydew

Edwin J. Jennings (Anderson, Clayton & Co.). *Textile Ind. 117:* 120-123 (December, 1953).

A simple test for detection of honeydew on raw cotton is described. This article is an abstract of a paper entitled *Another Look at Honeydew* which was presented at the Sixth Annual Cotton Merchandising Clinic in Austin, Texas.

A simple method for the identification of aminoplasts in anti-crease fabrics and other applications

E. Elod and H. Jorder. *Melliand Textilber. 34:* 860-863 (September, 1953); *in German.*

The information contained in this paper is summarized in *Brit. Rayon & Silk J. 30:* 80 (November, 1953).

Studies on the quality of sliver and yarn. Part 7

H. Uchida, K. Mihira and Y. Narita. *J. Soc. Text. Cellulose Industr., Japan 9, No. 1:* 22-24 (1953); *in Japanese with English summary.* Through *Brit. Cotton Ind. Research Assoc. 33:* 712 (November 14, 1953).

A formula is presented for calculating the frequency of neps in a yarn, from a count of neps and their distribution in a sample length.

A technique for standardizing massed batteries of control charts

Stafford Beer. *Appl. Statistics 2:* 160-165 (November, 1953).

Mr. Beer describes a simple apparatus for presenting a large number (up to 50) of control charts in a compact and comprehensive manner, which simplifies comparisons of variations. Such a mechanism should be especially interesting to textile mills with the large number of variables to be controlled from raw materials through finished product. N.L.E.

Unevenness of yarns

G. R. Williams. *Textile J. Australia 28:* 582-584, 586-587 (July 20, 1953).

General survey of the causes, control, and measurement of yarn non-uniformity.

Clothing and Fabrics G 1

Analysis of warp-knitted fabrics. Part 2. Methods of determining fabric structure and manufacturing particulars from small samples

D. F. Paling. *Brit. Rayon & Silk J. 30:* 56-59 (November, 1953).

Effectiveness of water-repellent finishes on a home furnishing fabric

Meta B. Metze (Purdue University). *J. Home Econ. 45:* 739-740 (December, 1953).

Abstract of an M. S. thesis. The purpose of the study was to determine whether a home furnishing fabric could be made more effective and require less care in home use if it were given a water-repellent finish. The objectives included determination of (1) the specific characteristics

that each type of water repellent gave to the basic fabric, (2) whether the same finishes were more effective when applied in the home or when applied by a textile finishing company, and (3) the best home method of applying a silicone finish.

Effects of construction and fiber type on two-dimensional stress-strain properties of fabrics

H. K. Woo and D. J. Montgomery (Textile Research Institute, Princeton, N.J.). *Textile Research J. 23:* 925-929 (December, 1953).

This paper gives the results of some experiments to show the effects of construction and type of fiber on the two-dimensional behavior of fabrics. In addition, the effect of coating was investigated by the study of a neoprene-coated airship fabric. The apparatus and the method of test were described in a previous paper in the June 1953 issue of *Textile Research Journal.*

Evaluation of sea-water laundry detergents. Part 1

Rubin Bernstein and Harry Sosson (Industrial Test Laboratory, Philadelphia Naval Shipyard). *Soap Sanit. Chemicals 29:* 42-45, 203, 205 (December, 1953).

This paper describes a study of the new detergents and detergent-builder combinations to determine their utility for shipboard laundering of cottons with sea-water. The aims of the project were: (1) to establish a list of products equal or preferably superior in efficiency to those presently considered satisfactory for sea-water use; (2) to evaluate existing laboratory test procedures to determine if they could adequately forecast performance under actual use conditions and (3) the development of revised specification requirements for sea-water laundry compounds. 9 references.

STUDY OF SOME FACTORS AFFECTING TEAR AND WATER RESISTANCE OF LIGHTWEIGHT CLOTHING AND TENTAGE FABRICS. William E. O'Brien and Louis I. Weiner. U. S. Office of the Quartermaster General. Research and Development Division. Textiles, Clothing, and Footwear Branch. 1953. 24p graphs, tables. Available from Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C. Mimeo: $.75. PB 111 187. Textile series report no. 81. Through *Bibliography Tech. Repts. 20:* 187 (November 6, 1953).

Instruments and Instrumentation G 2

Applications of x-rays and electron microscopy to the study of textile materials

J. J. Trillat. *Bull. Inst. Textile France No. 37:* 47-62 (1953); *in French.* Through *Chem. Abstracts 47:* 11739 (November 10, 1953).

A survey of the applications of x-ray diffraction and electron microscopy to textiles, along with a brief review of their principles.

Effect of relative humidity on Micronaire readings

Florence R. Gates and Edwin J. Jennings (Anderson, Clayton & Company, Houston, Texas). *Textile Research J. 23:* 942-944 (December, 1953).

A preliminary investigation was made to determine the extent to which Micronaire readings are influenced by relative humidity. Numerical data are presented. 5 references.

Measuring dye fading

R. J. Wey, Stroud, England. *Textile Wkly. 52:* 1618 (November 20, 1953).

Model 101 integrating light-meter for measuring the total amount of light over a given period or for showing when a predetermined total amount of light has been reached.

Measuring or controlling humidity

Brit. Pat. 695 579. Through *J. Soc. Dyers Colourists 69:* 382 (October, 1953).

A parchment member capable of extension according to humidity is mounted in a frame with compensating coefficients of expansion so that efficiency is not affected by temperature change. The humidity-sensitive member actuates a switch or recorder.

Silent research consultant

Textile Ind. 117: 89-92 (December, 1953).

Portable Centralograph, an automatic time recorder, is used at Pacific Mills for collecting data for time studies, wage incentives, quality control, supervising and increasing efficiency, planning and costing, and machine development.

Some specific features of the high-frequency yarn-evenness tester system Uster

Heinz Langer. *Textil- u. Faserstofftech. 3, No. 6:* 257-262; *No. 7:* 304-306 (1953); *in German.* Through *Brit. Cotton Ind. Research Assoc. 33:* 712 (November 14, 1953).

Details of the GGP-Uster, Model B, yarn- and sliver-testing apparatus are described, considering the East German government's policy of subsidizing the installation of the device in mills with a large enough output to justify the investment.

A study of abrasion testing. Part 4. Construction of an improved tester

H. Uchida, W. Ishibashi and H. Nakazato. *J. Soc. Text. Cellulose Industr. Japan 9, No. 1:* 25-28 (1953); *in Japanese with English summary.* Through *Brit. Cotton Ind. Research Assoc. 33:* 712 (November 14, 1953).

An abrasion tester is described. The circular abradants are plated with chrome and have 1 mm pitch flutes; they rotate horizontally beneath specimens at a rate of 7.4 r.p.m. Twenty-four specimens can be tested simultaneously, having independent clamps that lift automatically when a small hole is worn in the specimen. Three types of cushion for the specimens are available, and they are interchangeable.

Time control in textile processing. Part 3.

F. H. Slade. *Textile Mfr. 79:* 579-582 (November, 1953).

A detailed description of the functions and operation of synchronous and electronic time controllers, also mechanical instruments designed for time control on process plant, and in research and industrial laboratories.

Use of the ballistic pendulum for impact testing of tirecord

W. James Lyons and Irven B. Prettyman (Firestone Tire and Rubber Company, Akron, Ohio). *Textile Research J. 23:* 917-925 (December, 1953).

A ballistic pendulum tester for the absolute measurement of the energy (or work) of rupture of cords and yarns on impact is described, and the applied theory of the pendulum is briefly reviewed. For expressing the results of the test as applied to tirecord, with reference to various conditions, four physical quantities are defined. The significance of these quantities is discussed, and the results of exploratory tests on a number of rayon constructions are given, showing the application of the various measures. By means of high-speed photography, used in connection with the pendulum apparatus, the impact rupture process in tirecord has been analyzed, and the energy separated into its force and elongation components. It is revealed that an experimental cord having higher-than-normal strength by the conventional test not only has a lower energy of rupture than a viscose control, but also appears to have lower impact strength. The analysis shows that the "breaking point," even in an impact test, is not an instantaneous phenomenon. 8 references.

TEXTILE MILLS H

CASE STUDY DATA ON PRODUCTIVITY AND FACTORY PERFORMANCE: COARSE COTTON GRAY GOODS. (Based on reports submitted by 16 selected mills). U. S. Bureau of Labor Statistics. Mar. 1953. 112p photos, diagrs., graph, tables. Available from U. S. Dept. of Labor, Bureau of Labor Statistics, Washington 25, D. C. PB 109 999. Through *Bibliography Tech. Rpts. 20:* 143 (October 2, 1953).

Prepared for the Mutual Security Agency, Productivity and Technical Assistance Division.

Fine points of quality control. Part 1

Hosiery Underwear Rev. 36: 81-83 (December, 1953).

Organization of a quality control program at the Virginia Maid Hosiery Mills, Pulaski, Va.

A quality-controlled product is a more saleable product

N. L. Enrick. *Textile Age 17:* 35-37 (December, 1953).

The three factors governing quality of manufactured product, design, workmanship and uniformity, are evaluated in their relation to saleability of product. Actual examples are furnished, utilizing a general outline applying to the four major spinning systems: cotton, filament, woolen and worsted. This article was adapted from a seminar given by Mr. Enrick at the Institute of Textile Technology in April 1953.

Textile Recorder International Exhibition of Textile Machinery and Accessories, Manchester

Textile Recorder 71: 94-134 (November, 1953).

The following series of articles discusses trends in textile machinery design: *The trend of development in spinning machinery design,* by J. S. Taylor, p. 94-96; *Some impressions of the woolen and worsted spinning machinery,* by P. P. Townend, p. 97-99; *Major developments in yarn production techniques,* by G. Waggett, p. 100-104; *Modern trends in the design of yarn preparation machinery,* by D. Brunnschweiler, p. 106-110; *Many improvements in weaving machinery design,* by D. S. Snowden, p. 111-114; *Dyeing and finishing machinery developments,* by J. W. Bell and C. S. Whewell, p. 115-116, 133-134.

Circuit breakers as applied to textile mills

W. M. Emmons (Westinghouse Electric Corp.). *Textile Age 17:* 69-75 (December, 1953).

Based on a talk given before the Conference on Electrical Equipment for the Textile Industry at Raleigh, N. C.

Drive requirements for cotton machinery

Zoltan S. Szaloki. *Whitin Rev. 20:* 22-33 (November-December, 1953).

General survey of past, present, and future drives for various cotton processing machines.

Dry chemical fog eliminates moth damage to wool

Peter Jones. *Textile World 103:* 123,227-228 (December, 1953).

The Albany Felt Co. warehouse has reduced weekly moth counts from 915 in 1947 to 28½ in 1952 through a weekly spraying with a dry chemical fog.

Metallizing—a preventive maintenance operation

J. H. Nill. *Textile Bull. 79:* 107-110 (November, 1953).

Money-saving metallized parts absorb lubrication, and can be utilized on opening machines, in card room, spinning room and weave room.

More than a card stripper; new V. S. A. vacuum plant

G. Hargreaves (Hargreaves Engineering Co. Ltd., Blackburn, England). *Textile Wkly 52:* 1190, 1192 (October 16, 1953). *Textile Merc. 129:* 656-657 (October 9, 1953).

Hargreaves pneumatic cleaning.

A new device for the changeover of piping in pneumatic delivery systems

Karl Zuleger. *Textil-Praxis 8, No. 7:* 552-553 (1953); *in German.* Through *Brit. Cotton Ind. Research Assoc. 33:* 642 (October 30, 1953).

The usual device for redirecting fibers being conveyed by pneumatic means consists of a cubic switch-box. This has serious disadvantages, caused mainly by the difference in diameter between the pipe and the box. To eliminate these disturbances, a pipe sleeve with an adjustable joint has been designed to be fitted in any angle to the existing pipe system with an easily controlled switch-gear and without a change of diameter.

Principles of epicyclic gearing

H. C. Spencer. *Textile Mfr. 79:* 587-589 (November, 1953).

Caustic recovery by evaporation

Cecil B. Ray (Pepperell Manufacturing Co.). *Textile Ind. 117:* 111-112 (December, 1953).

Disposal of caustic waste liquor from the textile industry

Wm. R. Steele and John V. McMahon (to Allied Chemical & Dye Corp.). USP 2 632 732, March 24, 1953. Through *Chem. Abstracts 47:* 5592 (June 10, 1953).

Strongly caustic wastes from textile mills are rendered relatively harmless by treating with carbon dioxide to lower the pH, oxidizing the original organic impurities with chlorine, and then diluting with water to dissolve the residual precipitate and improve the color. The treated solutions may then be delivered to sewage plants as they are now harmless to digestive microorganism or other useful aquatic life.

Experiments on the corrosion resistance of various materials in regard to sodium chlorite solutions apt to be used in the textile industry

J. Meybeck and N. Iwanow (Centre recherches textiles, Mulhouse, France). Part 3. *Bull. Inst. Textile France No. 36:* 7-26 (1952). Part 4. *No. 39:* 23-38 (1953); *in French.* Through *Chem. Abstracts 47:* 11742 (November 10, 1953).

Use of chemicals in the textile industry

C. F. Fitton. *Canadian Textile J. 70:* 53-57 (March 13, 1953).

The author discusses the various aspects of water in its relation to dyeing. The effects of contaminants originally in the water and those introduced in the mill are covered, along with the various water-softening treatments now available.

CHEMISTRY AND PHYSICS OF TEXTILE MATERIALS I

Chemicals for use in synthetic fibre manufacture. Part 3

A. J. Hall. *Fibres 14:* 393-394 (November, 1953).

The chemicals used in the production of Terylene (American equivalent: Dacron) and Perlon U are described.

East German research on the swelling and disintegrating mechanism of natrium cellulose fibres

W. Schramek and Lisa Ahrberg (German Research Institute for Fibrous Materials, Teltow, Germany). *Faserforschung und Textiltechnik 4:* 229-249 (June, 1953); *in German.*

Long summary in *Fibres 14:* 396 (November, 1953).

[1453]

Fibre-forming polymers from hydrazine

R. W. Moncrieff. *Textile Mfr. 79:* 559-562,564 (November, 1953).

From being almost a chemical curiosity, hydrazine has emerged as a useful chemical with unique properties. The combination of hydrazine, which is not too difficult to manufacture, with acids was an obvious follow-up of Carothers' work and it appears, now that the work has been published, that this line was followed simultaneously and independently in America, England, and in Germany. 12 patent references.

Further observations on the effects of evaporating water from cotton cellulose

G. W. Madaras and H. A. Turner. *J. Soc. Dyers Colourists 69:* 371-377 (October 1953).

The experiments described in a previous paper (Bone and Turner, *J. Soc. Dyers Colourists 66:* 315-327 (June, 1950)) were extended with the object of excluding gaseous oxygen more rigorously from the system. When the purified cotton cloth was first maintained for three days in a high vacuum, and then brought into contact with chemically deoxygenated water in an atmosphere of purified nitrogen, evaporation produced a brown line, closely resembling that already described, at the boundary between wet and dry cloth. With a modified procedure, when evaporation took place *in vacuo*, no brown coloration was observed, but evidence was obtained that chemical modification of cellulose in the boundary region was still taking place. 14 references.

Hemicellulose in the viscose rayon process; a chromatographic investigation

A. Buurman (Research Laboratory of A.K.U., Arnhem, Holland). *Textile Research J. 23:* 888-896 (December, 1953).

A chromatographic investigation of hemicellulose in rayon pulps is described. The composition of this hemicellulose, which is essentially a mixture of glucosans, mannans, and xylans, plus low-molecular-weight, noncarbohydrate material, is dependent on the nature of the raw cellulosic material from which the pulp is manufactured and on the type of pulping process used.

Photochemistry of the bleach-out process

A. Polgar. *Z. wiss. Phot. 46:* 188-237 (1951). Through *Chem. Abstr. 47:* 5283 (June 10, 1953).

A chemical study of dye fading in the presence of light.

Prevention of soil redeposition in textile cleaning

[1454]

operations by proteins and other polymeric materials

W. Fong and H. P. Lundgren (Western Regional Research Laboratory, Albany, Calif.). *Textile Research J. 23:* 769-775 (November, 1953).

Certain proteins and other polymeric materials have been found highly effective in preventing the redeposition of carbon black, a test soil, on cotton fabric in aqueous cleaning systems containing an alkylarylsulfonate detergent and alkaline builders. The soil-redeposition-preventing properties of the various proteins tested were found to be correlated approximately with their proline content. The proline-rich proteins gave good to excellent whiteness retention. Of several synthetic polymer materials investigated, the uncharged types were more effective than the charged types. For the uncharged polymers, polyvinylpyrrolidone, polyvinyl alcohol, and polyethylene glycol, an optimum degree of polymerization was observed for maximum effectiveness. 12 references.

Progress with new polymers; isocyanates and their modifying effects on other textile polymers

J. A. Somers. *Brit. Rayon & Silk J. 30:* 62-63 (November, 1953).

The isocyanates can easily be made to react and chemically combine with cellulose, protein, and other types of fibers sufficiently to produce distinct modification of their normal properties. This modification is usually permanent and reasonably fast. Isocyanates are discussed in connection with water repellent finishing, increasing the stability of mechanical finishes, and their use as a basis for the production of synthetic fibers such as Perlon U.

Rapid accurate determination of cellulose with the dichromate heat-of-dilution method

Herbert F. Launer and Yoshio Tomimatsu (Western Regional Research Laboratory, Albany, Calif.). *Anal. Chem. 25:* 1769-1770 (November, 1953).

Cellulose can be determined rapidly and with slight error in the presence of moisture and the usual inorganic impurities by using the dichromate heat-of-dilution method.

Reactivity of cellulose. Part 2. Water sorption, heats of wetting, and the reactions with thallous ethylate in ether, nitration mixtures, and heavy water of cotton linters alternately wetted with water and dried

W. J. Brickman, H. B. Dunford, E. M. Tory,

J. L. Morrison, and R. K. Brown. *Can. J. Chem. 31:* 550-563 (June, 1953).

31 references.

"S factor," a microbial enzyme which increases the swelling of cotton in alkali

P. B. Marsh, K. Bollenbacher, M. L. Butler, and L. R. Guthrie (U. S. Bur. Plant Industry, Beltsville, Md.). *Textile Research J. 23:* 878-888 (December, 1953).

Filtrates from certain microbial growth media have been found active in increasing the degree of alkali-swelling of cotton fibers. Numerous experiments are described which relate to the production and properties of the active material, here termed "S factor." 23 references.

Simplified procedure for water determination by the Karl Fischer method. Part 1. Application to drycleaning detergents and solvents

Albert R. Martin and A. C. Lloyd (National Institute of Drycleaning, Silver Spring, Md.). *J. Am. Oil Chemists Soc. 30:* 594-597 (December, 1953).

Method for water determination in the presence of volatile compounds such as dry cleaning detergents and solvents where distillation is not feasible. 7 references.

Some aspects of detergency and detergent testing

R. E. Wolfrom and A. C. Nuessle. (Rohm and Haas Co., Phila., Pa.). *Am. Dyestuff Reptr. 42:* P753-P762 (November 9, 1953).

Detergency is a single name for a number of different operations related only by the fact that in each case something is washed off something else with the aid of the detergent. The important detergency variables are different for each scouring operation. Until, on the basis of much further investigation, the principles underlying given operations have been clearly elucidated, reliance must be placed on end-use tests which correlate with actual field experience. Several end-use tests are described. 11 references.

Some observations on the reaction of modified keratins with nitro-prusside

O. Ripa. *Textile Research J. 23:* 776-782 (November, 1953).

The use of guanidine hydrochloride to aid in the detection of sulfhydryl and disulfide groups in wool with nitroprusside and (for disulfide) potassium cyanide. 29 references.

Starch studies. Parts 4-7

Albert W. Bauer and Eugene Pacsu (Textile

Research Institute, Princeton, N. J.). *Textile Research J. 23:* 853-877 (December, 1953).

Part 4. Concepts of structure. 44 references. Part 5. Alkali and acid processes of starch fractionation. Part 6. Characterization of fractionation products. Part 7. Properties of starch solutions and the kinetics of starch disaggregation. 21 references. Parts 1-3 appeared in the July and October 1942 and the March 1943 issues of *Industrial and Engineering Chemistry.*

Stochastic processes or the statistics of change

Maurice S. Bartlett (University of Manchester). *Applied Statistics 2:* 44-64 (March, 1953).

The term 'stochastic processes' is used to denote statistical phenomena that develop in time and the theoretical models that arise in their treatment, and as these are encountered in many fields, this article has a wide practical interest. Professor Bartlett indicates how stochastic processes arise in physics and communication engineering, the textile industry, economics, biology, and medicine. 35 references.

Symposium on molecular weights of cellulose

Ind. Eng. Chem. 45: 2482-2537 (November, 1953).

Nine papers describe modern studies on the molecular weight of cellulose. The emphasis is on precise determination of molecular weight and molecular weight uniformity using viscosity measurements. A plea is made for the adoption of uniform experimental methods and terminology. The papers are as follows: *Recent work on molecular weight of cellulose,* by E. H. Immergut, B. G. Ranby, and H. F. Mark; *Intrinsic viscosity of nitrocellulose,* by Charles H. Lindsley and Mary B. Frank; *Intrinsic viscosity of cellulose,* by A. F. Martin; *Intrinsic viscosities and molecular weights of cellulose and cellulose derivatives,* by E. H. Immergut and F. R. Eirich; *Molecular weight uniformity of cellulose and cellulose derivatives,* by Carl M. Conrad; *Nitration and fractionation of rayons,* by W. E. Roseveare and Louise Poore; *Summative cuprietheylenediamine fractionation of cellulose,* by W. A. Mueller and L. N. Rogers; *Precipitation fractionation of cellulose nitrate,* by R. L. Mitchell; and *Fractional separation of cellulose,* by Robert L. Scott. Reprints are available at 75 cents each from the Am. Chem. Soc., 1155 16th St., N. W., Wash. 6, D. C.

Thermal depolymerization of cellulose

D. Tishchenko and T. Fedorischev. *Zhur.*

Priklad Khim. 26: 383-396 (1953); *in Russian.* Through *Chemical Abstracts 47:* 10221 (October 10, 1953).

Cotton cellulose heated in an aqueous medium in a stainless steel autoclave begins to dissolve rather rapidly in water at 235°, forming products that have high reducing properties. In the dry state a rather rapid decomposition commences at 250°. The nonvolatile products are extracted with EtOH and appear to consist largely of levoglucosan with a small admixture of reducing sugars of low molecular weight. The aqueous solution fraction consists of polysaccharides of high molecular weight. Apparently the decomposition consists of two events: rupture of hemiacetal links at the middle and the ends of the cellulose macromolecules and loss of water. The rupture of hemiacetals yields products that rearrange to glucosan and are hydrated to saccharides.

Tri: the double-duty solvent; a short run-down on the trichlorethylene scoreboard

C. B. Shepherd. *DuPont Magazine 47:* 16-17 (October-November, 1953).

A variety of uses for trichlorethylene are described.

TEXTILE EDUCATION AND RESEARCH J

Ancient and modern textile production in London and the home counties

Ernest Goodale. *J. Soc. Dyers Colourists 69:* 317-328 (September, 1953).

An historical survey of the growth of the textile industries in and near London, England.

British Rayon Research Association

J. Wilson. *Chemistry and Industry No. 46:* 1212-1213 (November 14, 1953).

An account of the organization, research activities, and services of the British Rayon Research Association.

Crompton—unrewarded genius

Textile Merc. 129: 1090-1093 (November 27, 1953).

Story of the invention of the spinning mule in 1779 and its impact on the Lancashire cotton industry.

Development of textiles in Ontario. Part 1

B. K. Gunn. *Can. Textile J. 70:* 35-36 (November 20, 1953).

The history of Ontario's textile industry.

Development of textiles in Ontario. Part 2

B. K. Gunn. *Can. Textile J. 70:* 45-49 (December 4, 1953).

Economic future of research and development

Yale Brozen. *Ind. Laboratories 4:* 6-13 (December, 1953).

Costs in the industrial research industry and their relationship to profit are examined in detail, as well as the probable effect of prospective changes in the tax structure. A number of references are included.

Getting the goods on cotton

Chem. Week 73: 52, 54 (October 10, 1953).

A brief description of the Empire Cotton Growing Corporation's new African research station in Uganda.

International numbering of yarns and threads

Jacques Corbière (Societé "Rhodiaceta", Lyon, France). *Textile Research J. 23:* 945-948 (December, 1953).

Discussion of proposals for simplification of textile numbering by using one direct decimal numbering system based on metric units.

Life among Dutch textile workers. Part 9

William Hays Simpson. *Textile Bull. 79:* 76-78 (October, 1953).

Labor unions and social benefits are discussed.

1953 AATCC Convention; papers and products seek real solution to synthetic question

American Association of Textile Chemists and Colorists. *Textile World 103:* 136-149, 252 (November, 1953).

Products and instruments shown at the AATCC convention are described and intersectional contest papers are summarized.

Operational research as a science

Charles Goodeve. *Research 6:* 465-472 (December, 1953).

The following problems in operations research are analyzed: Balancing opposing loads, self-coupling, fluctuating loads, capacity, and queuing. Although the analysis is in general terms, the applications to the textile industry are obvious in production planning, machine-downtime and machine efficiency work, and similar programs.

[1459]

Practical research findings obtained at N. C. school

Am. Textile Reptr. 67: 35,115-123 (December 17, 1953).

Research program at the North Carolina State College School of Textiles in Raleigh.

Report of AATCC Convention

American Association of Textile Chemists and Colorists. *Textile Industries 117:* 165-172 (November, 1953).

Abstracts of a number of papers presented in the technical sessions are given.

Research considered vital to success at Bates

Am. Textile Reptr. 67: 84-85, 97 (November 19, 1953).

The work of the research department at Bates Manufacturing Co. in Maine is described.

Research findings push resurgence of wool fiber

Am. Textile Reptr. 67: 52-63, 95, 97 (November 19, 1953).

Research on wool at Lowell Technological Institute, Lowell, Mass., is illustrated by six pages of photographs.

Role of basic research in cotton utilization

Walter M. Scott (U. S. Bur. of Agricultural and Industrial Chemistry). *Textile Research J. 23:* 848-852 (November, 1953).

This paper discusses three projects at Southern Regional Research Laboratory as examples illustrating the importance of basic research. These projects are recrystallization of cotton cellulose, partial acetylation of cotton, and opening and cleaning cotton. The author estimates that fundamental research is required in at least 75% of SRRL projects.

Some aspects of capital development

P. W. S. Andrews. *J. Textile Inst. 44:* P687-P697 (September, 1953).

In this talk to the Lancashire section of the Textile Institute, the author discusses special problems in capital development in Great Britain, with particular emphasis on the need for more money resources for industry.

Spinning dreams into yarn

Gordon H. Kester. *DuPont Magazine 47:* 1-4 (October-November, 1953).

DuPont research methods in the development of new fibers are described.

[1460]

Survey of the cotton industry. Part 6. Better synchronization

Textile Weekly 52: 792,794 (September 18, 1953).

Suggestions are given for efficient synchronization of the British cotton industry through (1) greater standardization of products, (2) formation of larger amalgamated firms, and (3) incentives for firms to amalgamate.

Testing time for education in textiles; practical assessment of present conditions and problems still unsolved

A Thompson. *Brit. Rayon and Silk J. 30:* 84, 86, 88 (September, 1953).

A survey of textile education in Great Britain.

They keep on dyeing

Stanley H. Brown. *Modern Textiles Mag. 34:* 35,64,66 (December, 1953).

The career of Weldon G. Helmus, vice-president of Fair Lawn Finishing Company.

What is textile engineering?

Bertrand Hayward. *Am. Textile Reptr. 67:* 11-12, 45-46 (October 8, 1953).

Textile engineering is discussed by the director of the Philadelphia Textile Institute.

What makes Goldberg run?

Stanley H. Brown. *Modern Textiles Mag. 34:* 35,69-70,72 (November, 1953).

The career of J. B. Goldberg, textile consultant and former research director of J. P. Stevens and Co.

Wool Industries Research Association

A. B. D. Cassie. *Chemistry and Industry No. 43:* 1138-1143 (October 24, 1953).

A history, description of physical plant, and description of the most outstanding research problems being studied. 24 references.

Wool textile research underlying the development of methods and machinery

Wool Industries Research Association, Torridon, Leeds, England. *Textile Mfr. (Textile Machinery Exhibition Supplement) 79:* 6-9, 24 (October, 1953).

The ideas, methods and techniques that contribute towards the successful operation of modern textile machinery, and which will also play their part in machinery of the future are considered. The varied research projects at W. I. R. A. are reviewed.